



CANADA'S ECONOMIC STRATEGY TABLES

Clean Technology

The sector today
and opportunities
for tomorrow

INTERIM REPORT



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Budget 2017 proposed the establishment of six Economic Strategy Tables to **lead the creation of Canada's economic growth strategies**. Working with leading Canadian innovators, Innovation, Science and Economic Development Canada has now established the Economic Strategy Tables to identify growth opportunities in advanced manufacturing, agri-food, clean technology, digital industries, health/biosciences and clean resources.

Canada's economic growth is expected to continue at a moderate pace, potentially impacting Canadians' standard of living. The Economic Strategy Tables will galvanize stakeholders in six high impact sectors by setting ambitious growth targets, identifying sector-specific bottlenecks to growth, recommending specific strategies to achieve the targets, drive long-term and sustainable economic growth, and create high quality jobs for Canadians. The Tables will also help guide the Government of Canada in its efforts to provide relevant and effective programs for Canada's innovators.

Long-term sector-specific action plans to meet ambitious economic growth targets for 2025 and beyond across six sectors where Canada is globally competitive will include:

- A common vision for both industry and government that sets the course for moving forward to identify sector strengths, overcome obstacles and improve competitiveness and growth;
- Business-led solutions, government policy recommendations and public-private partnerships based on short-, medium- and long-term actionable areas;

- Greater inclusion of those traditionally underrepresented in the workforce, such as Indigenous Peoples, women, Canadians with disabilities and older workers, in these sectors; and
- A mechanism to champion and monitor sector growth strategies and results.

Each Table is chaired by an industry leader who drives the agenda of the Table and facilitates candid discussion. The Chairs of each Table also meet to take stock of progress and address key horizontal issues affecting all sector tables.

The sectors under the Economic Strategy Table Initiative have strong potential for innovation, growth and the creation of good, middle class jobs for all Canadians, including currently untapped pools of talent. They also face powerful forces of competition that demand action now to build on their strength and secure a place in the global economy.

Taking a sector-wide approach and sharing best practices will speed up and spread out the adoption of innovations, making sectors stronger on the whole. This will help make Canada's economy more resilient, better able to weather market cycles, and will help cement our world leadership where we excel.

“There is an enormous opportunity for Canadian businesses in clean technology to grow and capture a large share of global markets, while improving environmental outcomes. Clean technology can create jobs in Canada, grow the GDP and help scale up some of the great technology companies that are already in the Canadian market and exporting abroad.”

Audrey Mascarenhas,
Questor Technology Inc.

THE CLEAN TECHNOLOGY SECTOR TODAY

Clean technology refers to any process, product or service that reduces environmental impacts. These technologies are developed by a broad array of firms, and their adoption spans all sectors of the economy. By developing and adopting clean technologies, companies and industry can better control costs, meet new regulatory requirements, improve global competitiveness and reduce impacts on climate, water, land and air.

AT A GLANCE

CLEAN TECHNOLOGY IS A SIGNIFICANT ECONOMIC CONTRIBUTOR

- ~3% of Canada's 2016 GDP (~\$60 billion) was attributed to production of clean technologies, clean energy, waste management, and environmental goods and services¹
- To approximate the clean technology contribution (separating out clean electricity and waste management), the remaining environmental and clean technology activity accounted for 1.4% of Canada's 2016 GDP² and 178,000 jobs³

CANADA HAS MANY STRENGTHS

- A strong research ecosystem — contributing 3.1% of global clean technology research publications⁵
- Ranked 4th overall in the Global Cleantech Index⁶
- A young, sophisticated, highly skilled and entrepreneurial workforce⁷
- A pan-Canadian approach to support clean growth and address climate change, which encourages the development and adoption of clean technology.

CLEAN TECHNOLOGY EXPORTS ALIGN WITH CANADA'S EXPORT INTENSITY OVERALL

- Excluding electricity and waste management, 17.1% of Canadian clean technology production in 2016 was exported — in line with total economy exports at 16.9% (2014 figure)⁴

1 Statistics Canada. *Environmental and Clean Technology Products Economic Account, 2007 to 2016*. 2017.

2 Ibid

3 Ibid

4 Statistics Canada analysis. 2018.

5 Cleantech Group. *Clean Technology in Canada: Competitiveness and Global Benchmarks*. 2017.

6 Cleantech Group. *Global Cleantech Innovation Index (GCII)*. 2017.

7 Analytica Advisors. 2017.

CANADA FACES SOME CHALLENGES

- A risk-averse domestic market for clean technology adoption
- Low access to patient capital or investment models suited to the unique risk, cost and returns (including time-to-return) of clean technology
- Need for greater domestic drivers of clean technology adoption to increase Canadian market demand (e.g., enforced accountability for environmental cost of pollution, government procurement practices)
- Underrepresentation of women and indigenous persons employed in all aspects of clean technology from innovation through to leadership positions
- Low adoption versus other types of advanced technology due to the high capital intensity of unproven systems
- Relatively low export market access and expertise make it hard for Canadian clean technology companies to win customers and investments, navigate global supply chains and collaborate with partners

PRIORITY THEMES

Canada has much of what it takes to excel in clean technology: strong innovation capacity, good access to capital, and high global demand for goods and services. To seize the clean technology opportunity, the Table is considering how to strengthen and address gaps in research commercialization; improve the scale-up of firms and better support clean technology's unique investment needs. With that in mind, the Clean Technology Economic Strategy Table has identified the following priority themes:

1. STRENGTHENING EARLY-STAGE INNOVATION AND GROWING FIRMS TO SCALE

Canadian clean technology innovators face challenges as they strive to develop new products and solutions, grow their companies and demonstrate their technologies to the market. New models of support and targeted initiatives could help build the capacity to grow capital at the size needed to take advantage of the demand for large-scale solutions. Efforts to identify companies ready for scale-up along with the right set of supports required at each stage of their growth could ensure more Canadian clean technology makes it to market. These additional efforts could build on the recent initiatives launched by the federal government — including support for both early and late-stage innovation — while encouraging more private-sector engagement.

2. DEVELOPING DOMESTIC AND INTERNATIONAL MARKETS

Canadian clean technology goods and services are in demand; however, there are challenges in building a robust domestic market. Current tools such as government investments in infrastructure and procurement can be used to advance clean technology adoption and create market opportunities. Domestic adoption of clean technology can create a strong Canadian “first market” and support market-ready Canadian technologies that have the potential to be exported. Canada needs to build the export capacity of small and mid-sized companies by increasing their knowledge of global market opportunities and promoting mentoring of smaller firms by multinationals. Engaging in more strategic international outreach and identifying pathways to increase foreign direct investment in Canada will also help.

3. DRIVING INNOVATION THROUGH REGULATIONS AND STANDARDS

Regulations and standards can be powerful tools for advancing innovation. Canada should seize the strategic opportunity to create regulatory frameworks that proactively encourage the demonstration of clean technologies, and also facilitate closer collaboration among regulators, innovators and adopters, to ensure that regulations keep pace with technology advances. Regulatory harmonization across jurisdictions, along with taking a leading role in setting international standards, will both strengthen Canadian sectoral growth and environmental outcomes. The Table will look to other jurisdictions to better understand how other countries are encouraging innovation through regulations and standards.

4. GROWING JOBS AND ADVANCING SKILLS

Canada needs an effective clean technology workforce, with the skills to support inclusive and sustainable growth. The Innovation and Skills Plan identifies many important first steps by focussing on strengthening science, technology, engineering and math (STEM) skills; accessing global talent; and promoting work integrated learning. The Table will continue to explore ways to increase opportunities for underrepresented groups — including women and Indigenous persons — working across the clean technology innovation ecosystem from start-ups to globally competitive firms. To better enable Canadian clean technology firms to grow and scale, the Table will look at how to build the sector's entrepreneurial capacity in areas such as finance and business development. Investors' clean technology expertise could also be improved to better tailor investment models and risk appetite to clean technology.



WHAT'S NEXT

With the release of these interim reports, Tables will: work on establishing a vision and aspirational, top-down targets for long-term sectoral growth; integrate sectors action-oriented proposals into one comprehensive report; develop an action plan that includes short-term early deliverables and long-term initiatives; and identify performance indicators to track and measure results.

Ongoing consultations and transparency are key components of the Economic Strategy Tables. Canadians are also invited to share their answers via the following email: ic.est-tsse.ic@gc.ca.

- What is your aspirational vision for your sector? What would success look like in 2025?
- It is often suggested that countries need to target their growth efforts toward areas of competitive advantage. In your sector, where does Canada have strength or emerging strength?
- What are the obstacles to innovation in your sector? (You may wish to think about investment, talent and skills, access to markets, rules or regulations, or demand.) How could these be overcome?
- What is, or will be, the most significant innovation globally in your sector for the next 10 years? What is needed to capitalize on this innovation and establish Canada as a world leader?
- To ensure that all Canadians benefit from accelerated economic growth, what actions and partnerships could governments, businesses, educational institutions and Canadians undertake?

To support a transparent process, Table minutes are posted at <http://www.ic.gc.ca/eic/site/098.nsf/eng/home>.

MEMBERS OF THE CLEAN TECHNOLOGY ECONOMIC STRATEGY TABLE

Chair

Audrey Mascarenhas, Questor Technology Inc.

Members

Mike Andrade, Morgan Solar Inc.

Wade Barnes, Farmers Edge Precision Consulting Inc.

Marvin DeVries, Trojan Technologies Inc.

Malini Giridhar, Enbridge Gas Distribution Inc.

Jodi Glover, Real Tech Inc.

Karen Hamberg, Westport Innovations Inc.

Judi Hess, CopperLeaf Technologies Inc.

David Isaac, W Dusk Energy Group Inc.

Andrée-Lise Méthot, Cycle Capital Management

Christofer Mowry, General Fusion Inc.

Robert Niven, CarbonCure Technologies Inc.

Tom Rand, ArcTern Ventures

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